

CURRENT STATUS OF THE CLAIMS

1. (Original) A process of dyeing poly(m-phenyleneisophthalamide) fabric comprising:

(a) dyeing the fabric at a temperature in the range of about 100°C to about 150°C and elevated pressure in a fiber-dyeing solution containing a tinctorial amount of at least one dye and a dye diffusion promoting amount of an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value of the fabric at least 1.5%, then

(b) heating the fabric while in contact with the solution until the desired degree of dyeing is attained.

2. (Original) The process of claim 1 in which the dye is an acid, direct or disperse dye.

3. (Original) The process of claim 1, in which the amount of dye diffusion promoting agent is from about 10 to 120 percent by weight of fabric.

4. (Original) The process of claim 1, in which the ratio of dyeing solution to fabric is from about 40:1 to about 4:1 by weight.

5. (Original) The process of claim 1, including the additional step of (3) removing any residual amide from the fabric.

6. (Original) The process of claim 1, in which the fabric is dyed at a temperature of about 130°C.

7. (Original) The process of claim 1, in which the fabric is dyed for about 15 minutes to about 2 hours.

8. (Original) The process of claim 1, in which the fabric is a blend of poly(m-phenyleneisophthalamide) and poly(p-phenyleneterephthalamide) fibers, and the dye is a basic dye.

9. (Original) A process of dyeing a blend of poly(m-phenyleneisophthalamide) and poly(p-phenyleneterephthalamide) fibers comprising:

(a) treating the fibers at a temperature in the range of about 100°C to about 150°C and elevated pressure in a solution containing a tinctorial amount of a basic dye and a dye diffusion promoting amount of an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling ratio of the value at least 1.5%, then

(b) heating the fabric in the solution until the poly(m-phenyleneisophthalamide) fibers have been dyed and the poly(p-phenyleneterephthalamide) fibers have been strained.

10. (Original) The process of claim 9, in which the fabric is a blend of 0 to 10% by weight of poly(p-phenyleneterephthalamide) fibers, balance poly(m-phenyleneisophthalamide) fibers.

11. (Original) The process of claim 9, in which the fabric is treated at a temperature of about 130°C.

12. (Original) The process of claim 9, in which the fabric is treated for about 15 minutes to about 2 hours.

13. (Original) A process of flame-retardant treating poly(phenyleneisophthalamide) fabric comprising:

(a) treating the fabric with flame retardant at a temperature in the range of about 100°C to about 150°C and elevated pressure in a fiber-treating solution containing a flame-retarding amount of at least one flame retardant and a flame retardant diffusion promoting amount of an amide having 7 to 14 carbon atoms capable of increasing the swelling fiber of the fabric at least 1.5%, then

(b) heating the fabric while in contact with the solution until the desired degree of flame retardant fixation is attained.

14-68. Canceled.

69. (Previously presented) A method of dyeing aromatic polyamide fibers comprising pre-treating said fibers by contacting said fibers with a bath including a dye diffusion promoting agent comprising an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value of said fibers at least 1.5%, followed by contacting said pre-treated fibers with a dye.

70. (Previously presented) A method of flame-retardant treating aromatic polyamide fibers comprising pre-treating said fibers by contacting said fibers with a bath including a flame-retardant diffusion promoting agent comprising an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value of said fibers at least 1.5%, followed by contacting said pre-treated fibers with a flame-retardant.

71. (Previously presented) A method of dyeing and printing aromatic polyamide fibers comprising contacting the fibers with an aqueous dyebath including a functional amount of at least one dye and a dye diffusion promoting agent comprising an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value at least 1.5%, then applying onto the fabric a print paste including at least one dyestuff, a print paste thickening agent, and water.

72. (Withdrawn) A method of dyeing aromatic polyamide fibrous material comprising contacting the fibrous material with an aqueous dyebath including a functional amount of at least one dye and a dye diffusion promoting agent comprising an N-substituted aromatic carbonamide or an N,N-disubstituted aromatic carbonamide or mixture thereof, and heating the fibrous material while in contact with the dyebath to fix the dye within the fibrous material.

73. (Withdrawn) A fabric formed from the fibrous material dyed by the method of claim 72.

74. (Withdrawn) The method of claim 72 wherein the dyebath further comprises a flame retardant.

75. (Withdrawn) A method of flame retardant treating aromatic polyamide fibrous material comprising contacting the fibrous material with an aqueous bath including a functional amount of at least one flame retardant and a diffusion promoting agent comprising an N-substituted aromatic carbonamide or an N,N-disubstituted aromatic carbonamide or mixture thereof, and heating the fibrous material while in contact with the bath to fix the flame retardant within the fibrous material.

76. (Withdrawn) A fabric formed from the fibrous material treated by the method of claim 75.

77. (Previously presented) A method of dyeing aromatic polyamide fibrous material comprising contacting the fibrous material with an aqueous dye bath including a functional amount of at least one dye and a dye diffusion promoting agent comprising an N-substituted aromatic carbonamide or N,N-disubstituted aromatic carbonamide or mixture thereof, having 7 to 14 carbon atoms and capable of increasing the swelling value of the fibrous material at least 1.5%, and heating the fibrous material while in contact with the dyebath to fix the dye within the fibrous material.

78. (Previously presented) A method of dyeing aromatic polyamide fibers comprising contacting the fibers with an aqueous dyebath comprising a functional amount of at least one dye and a dye diffusion promoting agent comprising an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value at least 1.5%, and heating the fibers while in contact with the dyebath to fix the dye within the fibers.

79. (Previously presented) A fibrous material or fiber of an aromatic polyamide that has been dyed with a dye bath comprising a mixture of a dye diffusion promoting agent and a dye soluble or dispersed with said agent, said agent comprising an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value at least 1.5%.

80. (Previously presented) A method of treating aromatic polyamide fibers with a flame retardant comprising contacting the fibers with a bath comprising a functional amount of the flame retardant and a flame retardant diffusion agent comprising an aromatic amid having 7 to 14 carbon atoms capable of increasing the swelling value at least 1.5%, and heating the fibers while in contact with the bath to fix the flame retardant within the fibers.

81. (Previously presented) A fibrous material or fiber of an aromatic polyamide that has been treated with a flame retardant bath comprising a mixture of a flame diffusion agent and a flame retardant soluble or dispersed with said agent, said agent comprising an aromatic amide having 7 to 14 carbon atoms capable of increasing the swelling value at least 1.5%.